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**HIGHLIGHTS**  
**TIMBER RESOURCES** OF THE  
**SOUTHERN CUMBERLAND REGION**  
**KENTUCKY**

Central States Forest Experiment Station, U.S. Dept. of Agriculture, Forest Service  
in cooperation with Kentucky Department of Conservation  
and Cumberland National Forest

U.S. Forest Service Resource Bulletin CS-1

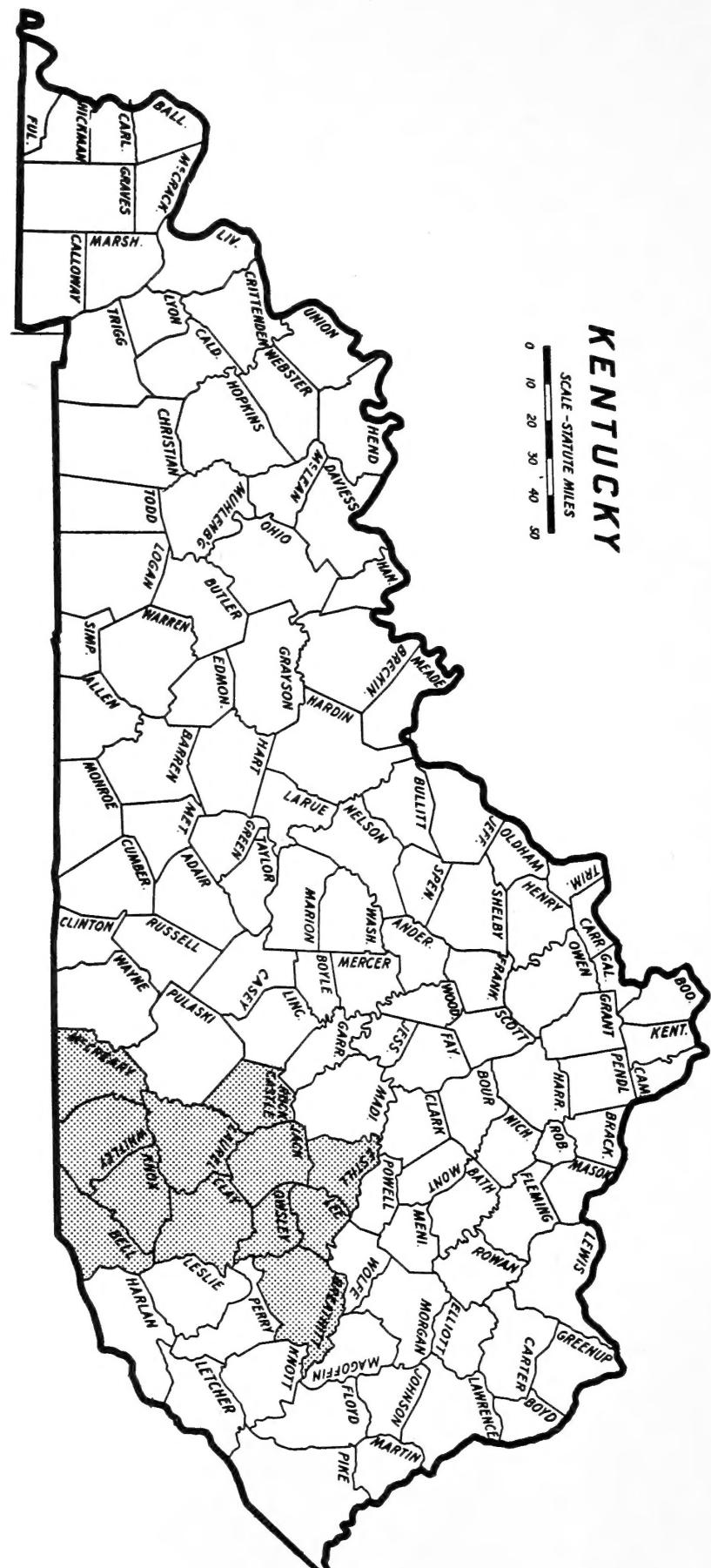
August 1963



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**FRONTISPIECE.--Southern Cumberland Region in Kentucky.**

# HIGHLIGHTS

## TIMBER RESOURCES OF THE SOUTHERN CUMBERLAND REGION KENTUCKY

David A. Gansner, research forester  
Central States Forest Experiment Station

This brief report represents the first results of a new inventory of Kentucky's forest resources now underway. The last statewide forest inventory in Kentucky was completed in 1949. Since then the forest has changed. Presented here is a new look at the forest resource situation of a 12-county region in the heart of Kentucky's most productive timber-growing area. The data in this report, though preliminary and subject to minor changes, provide fresh statistics needed to plan for future demands on the forest resource. They also provide current information needed to establish and develop stable forest-based industries through-

out the State and particularly in those areas of Kentucky where local economic development is urgently needed.

The new survey is being conducted cooperatively by the U.S. Forest Service and the Kentucky State Department of Conservation. The additional funds and manpower contributed by the State of Kentucky will permit a more intensive forest inventory supplemented by several special studies. As a result of this cooperation, a more thorough and precise picture of the State's forest resources can be presented.

#### Four-fifths of the Land Area is in Forest

The Southern Cumberland Region is heavily forested. Although this 12-county area accounts for less than 11 percent of the land surface of Kentucky, it contains about 20 percent of the State's total forest area.

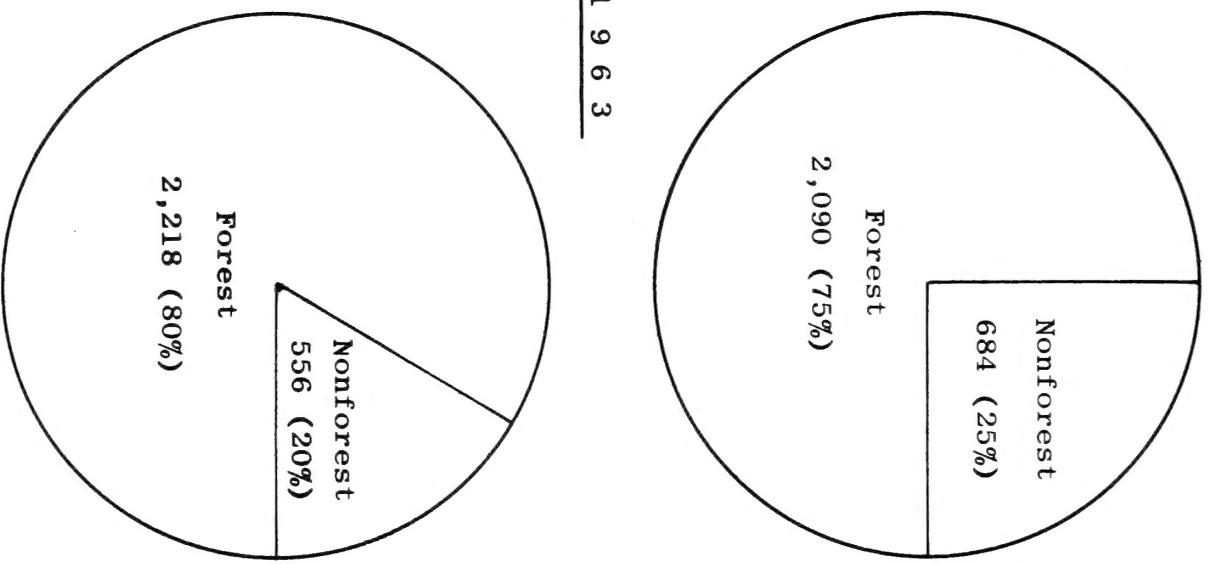
More than 2.2 million acres (80 percent of the Region) are covered with woodland. The remainder of the land area is in farm, urban, and other nonforest uses.

Laurel is the only one of the Region's 12 counties that is less than 70 percent forested. Breathitt County, with 281,000 acres, has the most woodland, but McCreary is more densely forested--almost 96 percent.

#### Forest Area has Increased 6 Percent

In 1949 the Southern Cumberland contained 2,090,000 acres of forest land. Since then the forest has enlarged by 128,000 acres, an increase of 6.1 percent (fig. 1). Much of this increment is no doubt the result of a decline in agriculture. Both the number of farms and the total acreage of farmland in the Region have decreased sharply since 1949. Some of these abandoned farms have reverted to forest.

FIGURE 1.--Forest and nonforest area, 1949 and 1963 (in thousands of acres and percent).



Less than 28,000 acres (1.2 percent) of the forest area in the Region is considered noncommercial. Four-fifths of this noncommercial forest is land which has been withdrawn from commercial use by reservation. The rest is unproductive forest incapable of producing industrial wood crops because of adverse site conditions. This leaves 2,190,500 acres of commercial forest land in the Region available for and capable of growing timber crops.

Commercial forest land has increased in 10 of the Region's 12 counties between forest inventories (fig. 2). The largest gains occurred in Breathitt, Clay, and Knox Counties. Slight decreases occurred in McCreary and Bell Counties.

Information on the ownership of commercial forest land is not yet complete. About 298,000 acres (14 percent) of the commercial forest land are in the Cumberland National Forest administered by the U.S. Forest Service. The remainder is either in other public holdings of federal, state, and local governments or in the hands of private individuals and industry. It is estimated that farmers alone own about one-fourth of the commercial forest in the Region.

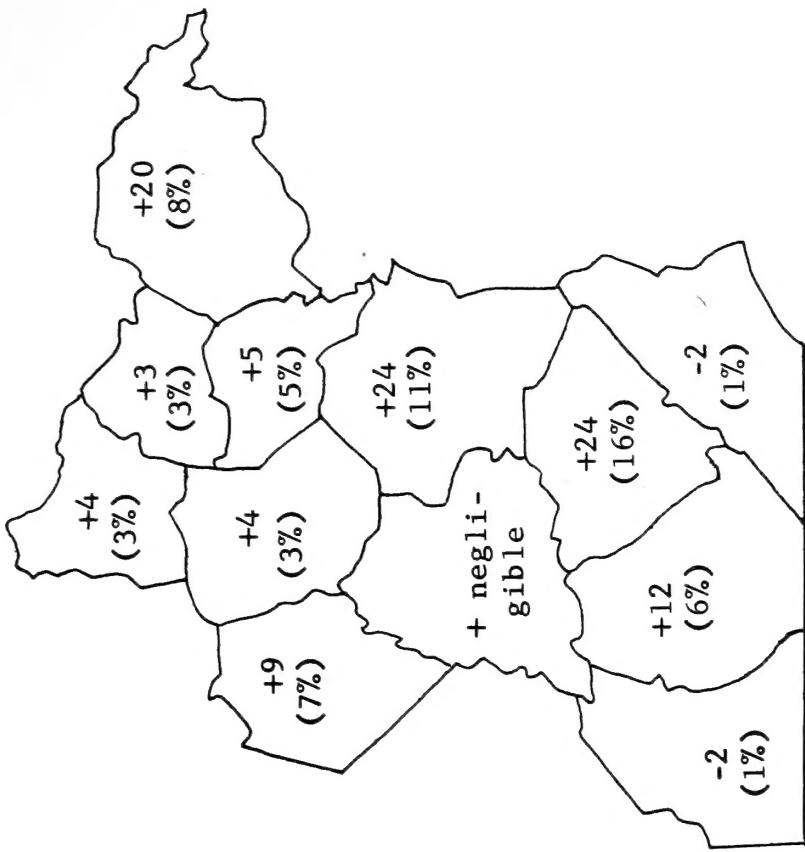


FIGURE 2.—Change in area of commercial forest land, by county, 1949 to 1963 (in thousands of acres and percent).

## Half of the Commercial Forest Area

### is in Sawtimber-Size Stands

Because classification standards have changed since the last inventory, a depiction of trends in forest area by stand-size classes would not be meaningful. However, under present forest inventory definitions, a fairly desirable stand-size situation does exist in the Southern Cumberland Region.

About 49 percent of the commercial forest area is in stands composed mainly of sawtimber-size trees. Twenty-six percent is in poletimber-size stands and 24 percent is in seedling and sapling stands. Less than 1 percent of the commercial forest is classified as nonstocked land--land less than 10 percent stocked with growing-stock trees (fig. 3).

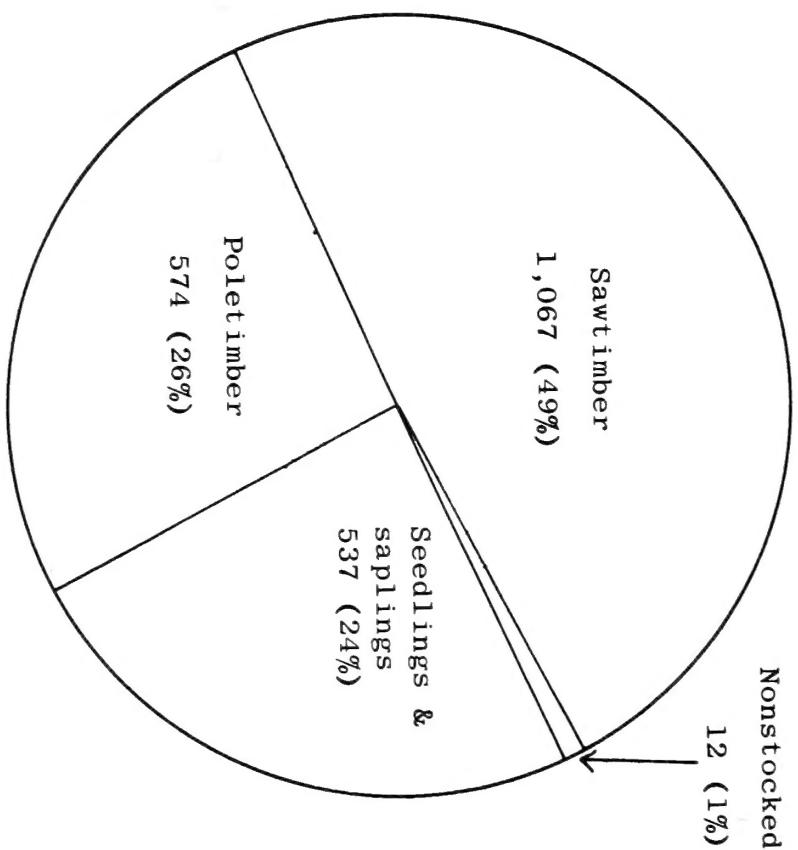


FIGURE 3.--Distribution of commercial forest area by stand-size class, 1963 (in thousands of acres and percent).

## Oak Stands are Predominant

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The commercial forests of the Region are classified according to eight distinct forest cover types. Oak-hickory and white oak stands combined occupy more than 990,000 acres or 45 percent of the commercial forest area. The central mixed hardwoods type, consisting of a combination of species including yellow-poplar, basswood, maple, black walnut, and elm, accounts for another 33 percent. Pine and oak-pine stands make up 17 percent. The remaining commercial forest area is classified as redcedar-hardwood, maple-beech, or elm-ash-cottonwood (fig. 4).

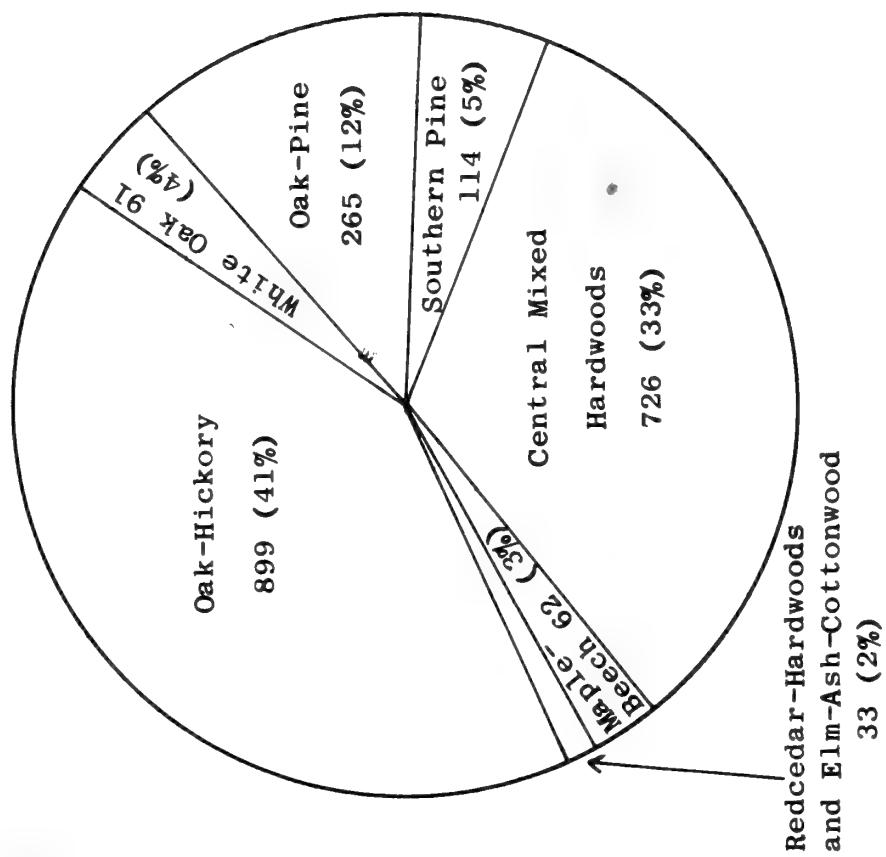


FIGURE 4.--Distribution of commercial forest area by forest type, 1963 (in thousands of acres and percent).

Total Growing-Stock Volume

has Increased 24 Percent

The commercial forest acreage of the Southern Cumberland Region supports 19.9 million cords of growing-stock volume.

Since the last forest inventory the growing-stock volume has increased from 7.7 to 9.1 cords on a per-acre basis (fig. 5). Overall, the volume has increased by 3.8 million cords, a gain of 24 percent or 1.7 percent per year (fig. 6).

TOTAL VOLUME

SAWTIMBER VOLUME

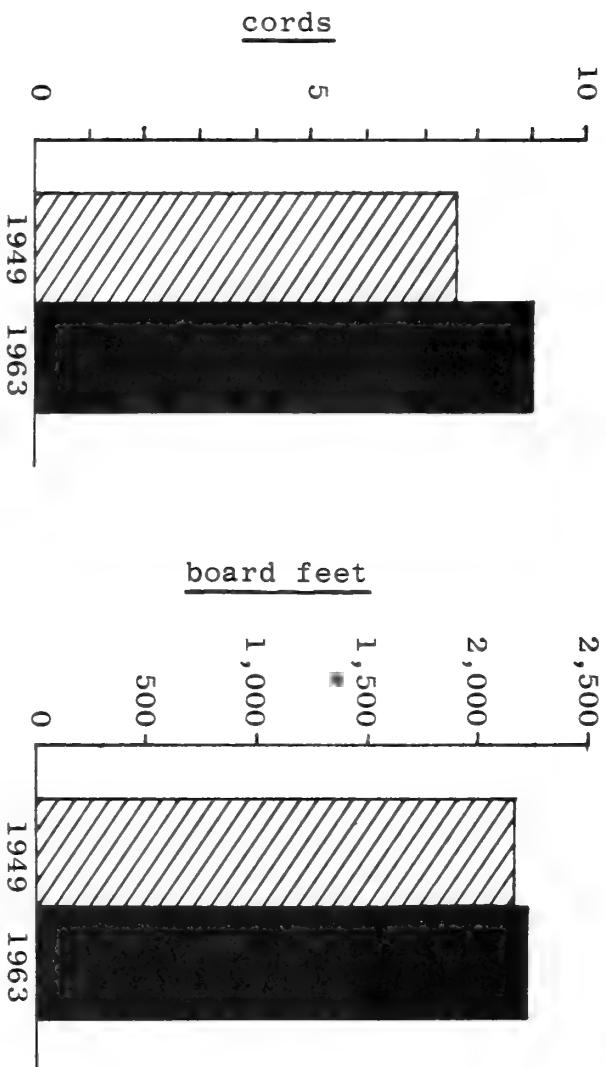


FIGURE 5.--Volume per acre on commercial forest land, 1949 and 1963.

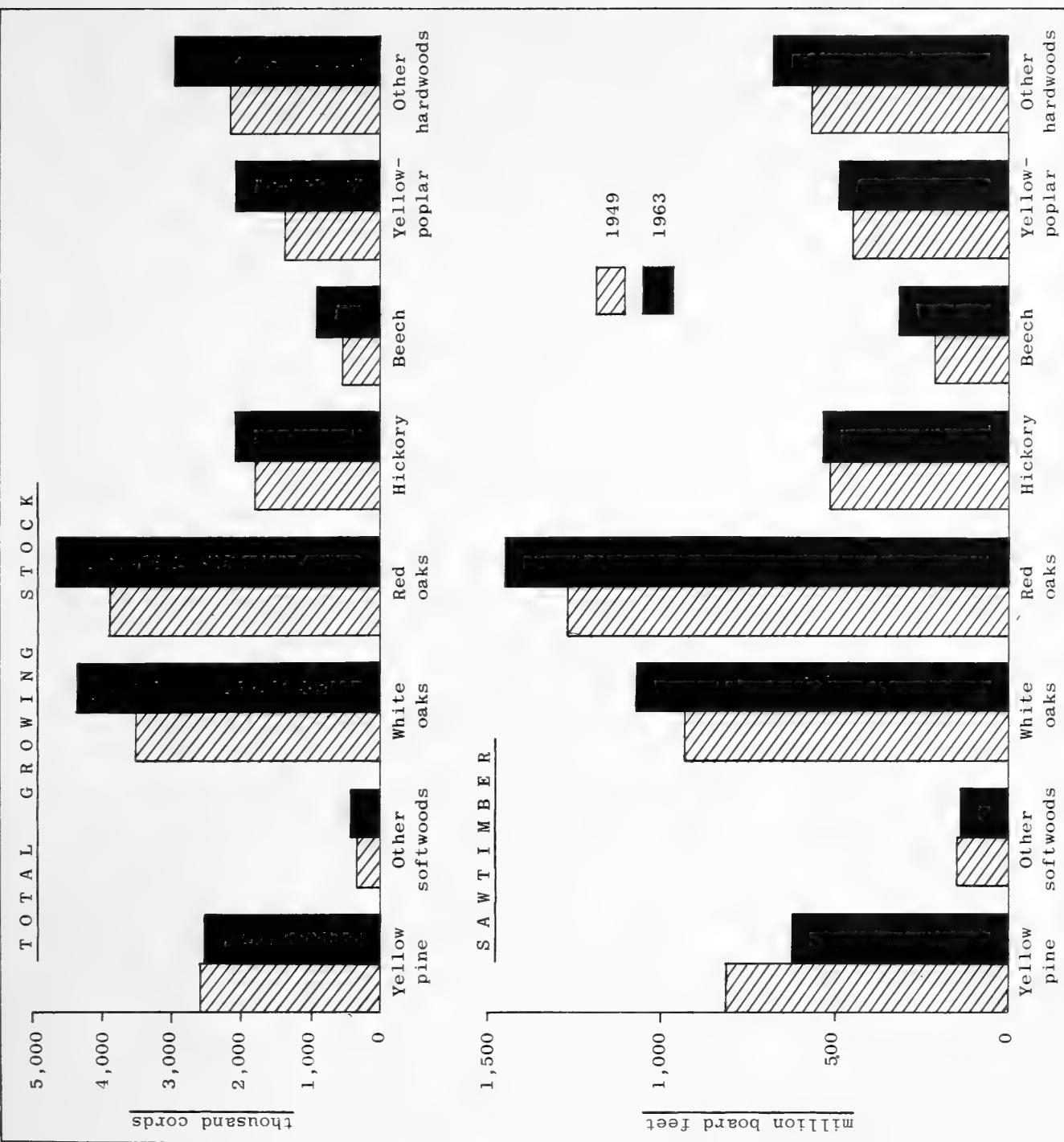


FIGURE 6.--Growing-stock volume on commercial forest land by major species groups, 1949 and 1963.

About 16.9 million cords or 85 percent of the Region's total growing-stock volume is in hardwood species and more than half of this hardwood volume is oak. Hardwood growing-stock volume is up 29 percent from what it was in 1949.

One-half of the Region's 2.9 million cords of softwood volume is shortleaf pine. Between surveys the volume of shortleaf pine decreased while that of other softwoods, Virginia pine and hemlock in particular, increased. All told, softwood growing stock increased 36 thousand cords or a little more than 1 percent.

#### Sawtimber Volume is up 8 Percent

The volume of sawlog-size material in the Region has increased 8 percent from 4,900 to 5,291 million board feet. Red oaks account for 1,443 million board feet (27 percent) and white oaks for 1,068 million board feet (20 percent) of the present volume. The volume of all hardwood sawtimber has increased by 590 million board feet, a gain of 15 percent. The sawtimber volume of nearly all the major hardwood timber species increased substantially. Softwood sawtimber volume fell off 20 percent to 770 million board feet between surveys.

The National Forests, though accounting for only 14 percent of the Region's commercial forest land area, contain 1,139 million board feet or 22 percent of the sawtimber volume.

Well over half of the Region's volume of softwood sawtimber is growing on National Forests.

Average sawtimber volume per acre has increased from 2,344 to 2,416 since the last inventory. About four-fifths of the sawtimber volume is in sawtimber-size stands which contain an average of 3,951 board feet per acre. Poletimber-size stands contain an average of 1,318 board feet per acre and other stands average 581 board feet per acre.

#### County Volume

Because the previous forest inventory of Kentucky lacked the intensification of the current inventory, no county volume statistics were provided in 1949. However, a comparison of 1963 statistics with unpublished estimates for 1949 allows us to view a few general trends. This comparison indicates that the total volume of growing stock has increased in nine of the Region's counties between surveys. The greatest percentage gains took place in Breathitt, Owsley, and Rockcastle Counties. Decreases occurred in Bell, Laurel, and Lee Counties.

McCreary has more timber volume than any of the other counties in the Region. This County accounts for 14 percent of the Region's total growing stock and 16 percent of the sawtimber volume. Almost 40 percent of the Region's softwood sawtimber volume is located in McCreary County.

TABLES

Table 1.--Forest land area by counties, Southern Cumberland Region, Kentucky, 1963

County	Forest land area			Noncommercial Thousand acres	Total forest as a percent of total land area
	Total Thousand acres	Commercial Thousand acres	Noncommercial Thousand acres		
Bell	211.6		199.0	12.6	89.4
Breathitt	281.3	280.4	.9	.9	89.0
Clay	247.0	246.6	.4	.4	81.4
Estill	125.4	124.8	.6	.6	75.4
Jackson	161.1	160.0	1.1	1.1	74.7
Knox	177.9	177.8	.1	.1	74.5
Laurel	188.7	185.1	3.6	3.6	66.6
Lee	109.7	108.9	.8	.8	81.6
McCreary	250.1	245.9	4.2	4.2	95.8
Owsley	96.7	96.6	.1	.1	76.7
Rockcastle	140.6	139.2	1.4	1.4	70.7
Whitley	228.0	226.2	1.8	1.8	77.8
All counties	2,218.1	2,190.5	27.6	27.6	79.9

Table 2.--Forest land area, by type and stand-size class

Southern Cumberland Region, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	
Commercial forest					
Southern pine	113.5	39.0	33.2	41.3	-
Redcedar-hardwoods	13.4	-	-	13.4	-
Oak-pine	265.0	125.3	70.3	69.4	-
White oak	91.1	54.9	30.0	6.2	-
Oak-hickory	899.3	552.3	216.6	130.4	-
Central mixed hardwoods	726.5	261.3	201.8	251.1	12.3
Maple-beech	61.9	30.4	15.4	16.1	-
Elm-ash-cottonwood	19.8	3.8	6.7	9.3	-
All commercial forest	2,190.5	1,067.0	574.0	537.2	12.3
Noncommercial forest					
Productive-reserved	22.7	16.6	4.8	1.3	-
Unproductive forest	4.9	-	-	-	4.9
All noncommercial forest	27.6	16.6	4.8	1.3	4.9
All forest area	2,218.1	1,083.6	578.8	538.5	17.2

Table 3.--Commercial forest land area, by type and stand-size class,

Bell County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	6.7	1.3	1.8	3.6	-
Redcedar-hardwoods	.9	-	-	.9	-
Oak-pine	15.1	6.5	3.5	5.1	-
White oak	4.7	2.4	2.3	-	-
Oak-hickory	89.6	56.1	20.1	13.4	-
Central mixed hardwoods	72.2	23.0	21.1	26.3	1.8
Maple-beech	7.3	4.3	2.0	1.0	-
Elm-ash-cottonwood	2.5	.5	1.1	.9	-
Total	199.0	94.1	51.9	51.2	1.8

Table 4.--Commercial forest land area, by type and stand-size class,  
Breathitt County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	8.1	2.5	2.0	3.6	-
Redcedar-hardwoods	1.1	-	-	1.1	-
Oak-pine	22.9	9.2	6.4	7.3	-
White oak	5.3	2.7	2.6	-	-
Oak-hickory	130.6	80.6	31.1	18.9	-
Central mixed hardwoods	99.2	36.3	28.7	32.3	1.9
Maple-beech	9.6	4.6	2.5	2.5	-
Elm-ash-cottonwood	3.6	.8	1.2	1.6	-
Total	280.4	136.7	74.5	67.3	1.9

Table 5.--Commercial forest land area, by type and stand-size class,

Clay County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Saplings	Nonstocked
Southern pine	9.3	3.3	2.1		3.9	-
Redcedar-hardwoods	1.3	-			1.3	-
Oak-pine	25.0	11.1	6.5		7.4	-
White oak	4.5	2.3	2.2		-	-
Oak-hickory	108.5	65.8	25.9		16.8	-
Central mixed hardwoods	89.5	29.5	27.8	31.1	1.1	
Maple-beech	6.6	3.0	1.8	1.8	-	
Elm-ash-cottonwood	1.9	.3	.6	1.0	-	
Total	246.6	115.3	66.9	63.3	1.1	

Table 6.--Commercial forest land area, by type and stand-size class,

Estill County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	6.9	1.3	3.3	2.3	-
Redcedar-hardwoods	.5	-	-	.5	-
Oak-pine	14.8	6.2	3.1	5.5	-
White oak	2.2	1.2	1.0	-	-
Oak-hickory	52.6	32.0	13.1	7.5	-
Central mixed hardwoods	42.7	16.5	11.3	14.2	0.7
Maple-beech	3.9	2.3	.7	.9	-
Elm-ash-cottonwood	1.2	.3	.3	.6	-
Total	124.8	59.8	32.8	31.5	.7

Table 7.--Commercial forest land area, by type and stand-size class

Jackson County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Saplings	Nonstocked
Southern pine	3.3	0.8	0.7	1.8	-	-
Redcedar-hardwoods	.9	-	-	.9	-	-
Oak-pine	22.0	11.0	7.6	3.4	-	-
White oak	9.4	5.6	3.5	.3	-	-
Oak-hickory	71.4	42.2	21.4	7.8	-	-
Central mixed hardwoods	47.5	15.4	14.4	16.7	1.0	-
Maple-beech	3.8	2.0	.9	.9	-	-
Elm-ash-cottonwood	1.7	.2	.5	1.0	-	-
Total	160.0	77.2	49.0	32.8	1.0	

Table 8.--Commercial forest land area, by type and stand-size class

Knox County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	4.4	1.0	0.5	2.9	-
Redcedar-hardwoods	1.0	-	-	1.0	-
Oak-pine	14.6	5.5	4.7	4.4	-
White oak	3.1	1.8	1.3	-	-
Oak-hickory	79.2	46.9	20.8	11.5	-
Central mixed hardwoods	67.1	19.0	20.8	25.9	1.4
Maple-beech	6.4	2.4	1.8	2.2	-
Elm-ash-cottonwood	2.0	.2	.6	1.2	-
Total	177.8	76.8	50.5	49.1	1.4

Table 9.--Commercial forest land area, by type and stand-size class

Laurel County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	14.8	4.1	3.4	7.3	-
Redcedar-hardwoods	2.7	-	-	2.7	-
Oak-pine	40.6	21.2	9.0	10.4	-
White oak	14.0	12.4	1.2	.4	-
Oak-hickory	55.8	37.4	10.2	8.2	-
Central mixed hardwoods	55.6	26.2	7.9	21.0	0.5
Maple-beech	1.5	.5	.2	.8	-
Elm-ash-cottonwood	.1	-	-	.1	-
Total	185.1	101.8	31.9	50.9	.5

Table 10.--Commercial forest land area, by type and stand-size class

Lee County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings
Southern pine	4.9	1.8	0.9	2.2
Redcedar-hardwoods	.8	-	-	.8
Oak-pine	12.9	6.0	3.5	3.4
White oak	2.1	1.3	.7	.1
Oak-hickory	44.9	26.0	11.3	7.6
Central mixed hardwoods	39.4	13.3	10.8	14.6
Maple-beech	3.0	1.3	.9	.8
Elm-ash-cottonwood	.9	.1	.2	.6
Total	108.9	49.8	28.3	30.1
				.7

Table 11.--Commercial forest land area, by type and stand-size class

McCreary County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Saplings and seedlings
Southern pine	29.1	14.8	9.7	4.6	-
Redcedar-hardwoods	.3	-	14.6	.3	-
Oak-pine	50.2	26.5	10.0	9.1	-
White oak	32.2	17.3	17.0	4.9	-
Oak-hickory	70.9	45.4	15.1	8.5	-
Central mixed hardwoods	55.5	25.7	14.1	14.1	0.6
Maple-beech	5.6	3.0	1.3	1.3	-
Elm-ash-cottonwood	2.1	.8	.8	.5	-
Total	245.9	133.5	68.5	43.3	.6

Table 12 .--Commercial forest land area, by type and stand-size class

Owsley County, Kentucky, 1963  
(In thousands of acres)

Forest type	All	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
	stands				
Southern pine	3.2	0.7	0.5	2.0	-
Redcedar-hardwoods	1.2	-	-	1.2	-
Oak-pine	6.9	2.9	1.7	2.3	-
White oak	.8	.5	.3	-	-
Oak-hickory	41.2	21.4	11.1	8.7	-
Central mixed hardwoods	39.1	10.3	10.7	17.2	0.9
Maple-beech	3.3	1.0	.6	1.7	-
Elm-ash-cottonwood	.9	.1	.2	.6	-
Total	96.6	36.9	25.1	33.7	.9

Table 13.--Commercial forest land area, by type and stand-size class

Rockcastle County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	3.2	0.8	1.0	1.4	-
Redcedar-hardwoods	1.2	-	-	1.2	-
Oak-pine	15.0	8.8	2.6	3.6	-
White oak	6.1	3.6	2.4	.1	-
Oak-hickory	64.1	41.5	13.9	8.7	-
Central mixed hardwoods	44.1	16.7	14.9	12.2	0.3
Maple-beech	4.7	2.2	1.4	1.1	-
Elm-ash-cottonwood	.8	.1	.2	.5	-
Total	139.2	73.7	36.4	28.8	.3

Table 14.--Commercial forest land area, by type and stand-size class  
Whitley County, Kentucky, 1963

(In thousands of acres)

Forest type	All stands	Sawtimber	Poletimber	Saplings and seedlings	Nonstocked
Southern pine	19.6	6.6	7.3	5.7	-
Redcedar-hardwoods	1.5	-	-	1.5	-
Oak-pine	25.0	10.4	7.1	7.5	-
White oak	6.7	3.8	2.5	.4	-
Oak-hickory	90.5	57.0	20.7	12.8	-
Central mixed hardwoods	74.6	29.4	18.3	25.5	1.4
Maple-beech	6.2	3.8	1.3	1.1	-
Elm-ash-cottonwood	2.1	.4	1.0	.7	-
Total	226.2	111.4	58.2	55.2	1.4

Table 15.--Net timber volume on commercial forest land, by species and stand-size classes,  
Southern Cumberland Region, Kentucky, 1963

Species	Growing stock			Sawtimber		
	Total	Sawtimber	Poletimber	Other stands	Total	Sawtimber stands
	Thousand cords <sup>1</sup> / cords <sup>1</sup>	Million board feet <sup>2</sup> / board feet <sup>2</sup>	Million board feet <sup>2</sup> / board feet <sup>2</sup>			
<b>Softwoods:</b>						
Shortleaf pine	1,464.2	946.5	359.0	158.7	383.34	280.98
Other yellow pine	1,054.2	529.4	377.5	147.3	243.10	153.00
White pine	16.0	5.3	10.7	-	3.60	3.20
Hemlock	368.3	311.3	50.4	6.6	136.26	116.05
Other softwoods <sup>3</sup>	28.1	17.5	5.3	5.3	3.72	3.11
All softwoods	2,930.8	1,810.0	802.9	317.9	770.02	556.34
<b>Hardwoods:</b>						
Select white oak	2,598.9	1,881.5	592.3	125.1	567.65	473.89
Select red oak	747.1	555.8	154.2	37.1	258.60	212.30
Other white oak	1,747.4	1,320.0	329.4	98.0	499.97	418.71
Other red oak	3,892.8	2,866.8	796.4	229.6	1,184.05	980.45
Select hickory	925.8	574.5	257.9	93.4	235.41	168.74
Other hickory	1,136.1	836.1	243.6	56.4	297.94	262.48
Yellow birch	14.6	12.2	2.4	-	2.56	2.56
Hard maple	307.6	210.2	82.2	15.2	63.01	50.48
Beech	899.7	704.4	130.4	64.9	317.14	270.49
Black walnut	110.3	49.8	38.0	22.5	18.86	6.47
Ash	269.2	167.9	92.1	9.2	54.70	44.38
Elm	73.1	48.8	22.1	2.2	13.13	9.12
Soft maple	819.4	541.2	227.8	50.4	182.85	152.29
Sweetgum	229.0	157.5	55.0	16.5	62.20	50.83
Blackgum	401.0	300.1	64.0	36.9	119.00	96.77
Sycamore	66.3	28.2	11.8	26.3	7.88	6.75
Yellow-poplar	2,047.1	1,099.3	791.2	156.6	485.97	349.67
Basswood	140.9	90.5	22.3	28.1	49.28	33.84
Other soft hardwoods	355.5	188.3	133.9	33.3	77.92	51.85
Other hard hardwoods	162.8	94.5	58.8	9.5	23.24	17.43
All hardwoods	16,944.6	11,727.6	4,105.8	1,111.2	4,521.36	3,659.50
All species	19,875.4	13,537.6	4,908.7	1,429.1	5,291.38	4,215.84

<sup>1</sup> To convert to cubic feet multiply by 79.

<sup>2</sup> International 1/4-inch rule.  
<sup>3</sup> Mainly redcedar.

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<sup>2</sup> International 1/4-inch rule.

<sup>3</sup> Mainly redcedar.

Table 16.--Net timber volume on commercial forest land by counties and species groups,

Southern Cumberland Region, Kentucky, 1963

Counties	Growing stock			Sawtimber		
	Total Thousand cords <sup>1</sup>	Softwoods: Hardwoods		Total Million board feet <sup>2</sup> /	Softwoods Million board feet <sup>2</sup> /	Hardwoods Million board feet <sup>2</sup> /
		Thousand cords <sup>1</sup>	cords <sup>1</sup>			
Bell	1,675.9	164.6	1,511.3	442.19	38.12	404.07
Breathitt	2,409.6	235.3	2,174.3	637.55	54.76	582.79
Clay	2,079.8	204.9	1,874.9	545.35	47.20	498.15
Estill	1,081.0	113.2	967.8	284.57	27.14	257.43
Jackson	1,546.7	194.0	1,352.7	361.25	47.78	313.47
Knox	1,452.1	145.4	1,306.7	373.79	32.86	340.93
Laurel	1,728.0	293.6	1,434.4	485.33	83.30	402.03
Lee	930.2	102.3	827.9	240.31	23.46	216.85
McCreary	2,832.8	938.3	1,894.5	863.58	289.18	574.40
Owsley	738.5	78.7	659.8	184.88	17.86	167.02
Rockcastle	1,284.3	137.0	1,147.3	336.32	33.37	302.95
Whitley	2,116.5	323.5	1,793.0	536.26	74.99	461.27
All counties	19,875.4	2,930.8	16,944.6	5,291.38	770.02	4,521.36

<sup>1</sup>To convert to cubic feet multiply by 79.

<sup>2</sup>International 1/4-inch rule.

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## DEFINITION OF TERMS

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### Stand and Tree-Size Classes

Sawtimber stands.--Stands at least 10 percent stocked with growing-stock trees with half or more of this stocking in sawtimber or poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

Sawtimber trees are live trees of commercial species at least 9.0 inches in diameter breast height for eastern softwoods and 11.0 inches in diameter breast height for hardwoods containing at least one merchantable saw log.

A merchantable saw log is defined as a log (a) with a minimum top diameter of 8 inches, (b) with a minimum length of 8 feet, (c) containing at least 50 percent sound volume; and (d) meeting the minimum log-grade or tie-and-timber specification. "Local-use" logs of poorer quality are not included even though used locally.

Poletimber stands.--Stands at least 10 percent stocked with growing-stock trees with half or more of this stocking in sawtimber or poletimber trees and with poletimber stocking exceeding that of sawtimber stocking.

Poletimber trees are defined as live trees of commercial species 5.0 to 8.9 inches in diameter breast height for softwoods, and 5.0 to 10.9 inches in diameter breast height for hardwoods, and of good form and vigor.

Sapling and seedling stands.--Stands at least 10 percent stocked with growing-stock trees with more than half of this stocking in saplings and/or seedlings.

Seedlings and saplings are well-established live trees of commercial species less than 5.0 inches in diameter and of good form and vigor.

Nonstocked areas.--Commercial forest lands less than 10 percent stocked with growing-stock trees.

Stocking.--Stocking is a measure of area occupancy using dominant and codominant growing-stock trees.

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### Forest Types

Southern pine.--Forests in which 50 percent or more of the stand is southern pine (usually shortleaf pine).

Redcedar-hardwoods.--Forests in which 50 percent or more of the stand is hardwoods but in

which redcedar makes up 25 percent of the stand.

Oak-pine.--Forests in which 50 percent or more of the stand is hardwoods (usually upland oaks) but in which hard pines make up 25 to 49 percent of the stand.

White oak.--Forests in which 50 percent or more of the stand is white oak.

Oak-hickory.--Forests in which the upland oaks and hickories singly or in combination comprise over 50 percent of the stand, except for stands classed white oak, redcedar-hardwoods, or mixed hardwoods.

Central mixed hardwoods.--Forests in which yellow-poplar, maple, beech, basswood, black walnut, elm, and northern red oak make up over 50 percent of the stand, except for stands classed maple-beech and elm-ash-cottonwood.

Maple-beech.--Forests in which maple and/or beech comprise 50 percent or more of the stand.

Elm-ash-cottonwood.--Forests in which 50 percent or more of the stand is elm, silver maple, sweetgum, sycamore, boxelder, ash, or cottonwood singly or in combination.

#### Species Groups

Softwoods.--Coniferous species which include pine, hemlock and redcedar.

Soft hardwoods.--Soft-textured, broad-leaved species which include elm, soft maple, sweet-gum, blackgum, yellow-poplar, cottonwood, and sycamore.

Hard hardwoods.--Firm-textured, broad-leaved species which include all of the oaks and hickories, hard maple, birch, black walnut, and ash.

Select white oak.--Includes only white, swamp chestnut, swamp white, bur, and chinkapin white oaks.

Other white oak.--Includes all white oaks other than those listed above.

Select red oak.--Includes only cherrybark, northern red and Shumard red oaks.

Other red oak.--Includes all red oaks other than those listed above.

Select hickory.--Includes only shagbark, shellbark and mockernut hickories.

Other hickory.--Includes all hickories other than those listed above.



